



U.S. Fish & Wildlife Service

Currents

REGION 2 – SOUTHWEST REGION

Fisheries Program Highlights

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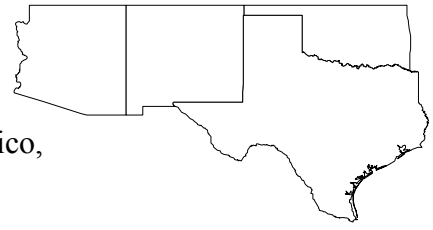


Tom Ensman tempers water in a bucket containing threatened Apache trout before releasing them into a recently renovated stream on Forest Service land

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REGION 2 – SOUTHWEST REGION

The Southwest Regional Office, located in Albuquerque, New Mexico, administers 12 fisheries field stations in Arizona, New Mexico, Oklahoma, and Texas.



The Division of Fishery Resources in the Southwest encompasses 3 Fishery Resources Offices, 5 National Fish Hatcheries, 3 Fish Technology Centers, and 1 Fish Health Center. The Division of Fishery Resources also has responsibility to control aquatic invasive species.

Fishery Resources Offices

The 3 Fishery Resources Offices (Arizona Fishery Resources Office, New Mexico Fishery Resources Office, and Oklahoma Fishery Resources Office) evaluate wild native fish stocks and their habitats, and where feasible, work with partners to restore habitats and fish populations.

These offices provide technical fish management assistance to tribes and other partners with a primary focus on native and interjurisdictional species.

National Fish Hatcheries

The National Fish Hatcheries (Willow Beach, Alchesay-Williams Creek, Uvalde, Tishomingo, and Inks Dam) develop and maintain brood stocks of important fish species, both sport fishes and critically imperiled non-game fishes. The hatcheries are the source of fish and eggs distributed to partners with similar aquatic conservation missions, such as native fish restoration or fulfilling federal mitigation responsibilities.

Hatcheries are often called upon to provide a place of refuge for imperiled aquatic organisms, such as aquatic plants and amphibians.

Fish Technology Centers

The Fish Technology Centers (Dexter, Mora, and San Marcos) develop leading-edge technology for use by tribal, state, and federal fish hatcheries and fishery biologists to make fish culture more productive, cost-effective, and scientifically sound.

Technology improves hatchery efficiency, helps assure the genetic integrity of fishes, at the same time minimizing the effects of hatchery fish on wild fish stocks.

Private aquaculture industry also benefits from scientific information generated by the Fish Technology Centers.

Fish Health Center

Pinetop Fish Health Center biologists assess the well-being of fish that live in the wild or are raised at hatcheries. Fish health

biologists are highly trained in various scientific disciplines, like immunology, epidemiology, toxicology, and genetics. They apply that knowledge in fish health assessments that might lead to early detection of potentially devastating diseases, prescribing preemptive measures.

The National Wild Fish Health Survey allows biologists to assess wild stocks and to share scientific findings with other scientists or the public through a national database.

Fish health assessments at state and federal hatcheries promote good fish culture and ultimately better, healthier fish stocks.

The U.S. Fish & Wildlife Service's fish health program takes a proactive and cooperative approach, networking with other health professionals to ensure healthy fisheries.



Non-native Channel Catfish Removal Efforts Continue on the San Juan River

Since 1996, biologists with the New Mexico FRO have been the lead investigators on a project aimed at evaluating and implementing mechanical removal efforts of non-native fishes from the San Juan River. These efforts are part of a cooperative partnership involving public, private, and tribal interests dedicated to recovering two federally endangered fish, Colorado pikeminnow and razorback sucker, while water development proceeds in compliance with Federal and State Laws.

From July through September 2005, a total of 3,023 channel catfish and 297 common carp were removed during five separate trips. Working partnerships with New Mexico Department of Game and Fish, Navajo Nation Fish and Wildlife Department, Bureau of Indian Affairs, and local land owners have allowed for the re-distribution and transplantation of the channel catfish to closed impoundments within the San Juan River Basin. This management practice has allowed researchers to accomplish removal goals while also enhancing recreational fishing opportunities to the public in the four corners region. In addition to mechanical removal of non-native fishes, life history information regarding growth and movement of rare fishes was obtained. A total of 64 razorback

sucker and 124 Colorado pikeminnow were collected. Colorado pikeminnow ranged in sized from 98 to 603 mm total length while razorback sucker ranged from 267 to 534 mm total length. These recapture data will aid researchers in making future management decisions for these two species.

Jason E. Davis, New Mexico FRO



-USFWS

Biologists electrofish for native and non-native fishes in the San Juan River.

A New Population of Threatened Apache Trout Introduced into Hayground Creek

On September 27, biologists from the Arizona FRO, Alchesay-Williams Creek NFH, and Arizona Game and Fish Department collected ~130 Apache trout from North Canyon Creek on the Kaibab National Forest and packed them out by mule in specially constructed panniers to the waiting hatchery truck to shorten the time in transport from this remote location. The North Canyon Creek population was established via 2 stockings of Apache trout from Ord Creek on the White Mountain Apache Reservation;

one in 1963 and another in 1968, both prior to the passing of the Endangered Species Act. Biologists from Alchesay-Williams Creek NFH transported the fish to Pinetop where they were held overnight before being transported to Hayground Creek. On September 28, biologists from the Arizona FRO, Alchesay-Williams Creek NFH, Arizona Game and Fish Department, and White Mountain Apache Tribe hiked into Hayground Creek on the Apache-Sitgreaves National Forest with 5-gallon buckets containing Apache trout. In total, 124 Apache trout of several different sizes were successfully stocked into this 5-mile stretch of stream. Several of the fish stocked were adults, which will help this population get a “jump-start” next spring. Hayground Creek is within the historic range of Apache trout, but non-native trout had made it into the stream, overtime out-competing native Apache trout. This summer biologists had renovated the stream to remove the non-native brown trout. This reintroduction of Apache trout into Hayground Creek moves this species one step closer to recovery.

Stewart Jacks, Arizona FRO



-USFWS

Threatened Apache trout collected from North Canyon Creek were ultimately released into Hayground Creek

Oklahoma FRO is on the Lookout for Zebra Mussels

The Oklahoma FRO has been working in partnership with the Oklahoma Zebra Mussel Task Force including the Army Corps of Engineers, U.S. Bureau of Reclamation, and others to prevent the spread of zebra mussels across the state. Zebra mussels are not native to the U.S. and they out-compete indigenous mussels, and damage water lines and recreational watercraft. Currently, 54 sites across Oklahoma are being monitored monthly for the presence of zebra mussels. The Oklahoma FRO has deployed Portland samplers at each lake, and the samplers serve as an attachment site for zebra mussels. Zebra mussels have been detected at a number of sites in northeastern Oklahoma. Early detection of zebra mussel colonization is an integral component to slowing the spread of this aquatic nuisance species.

Brent Bristow, Oklahoma FRO



-USFWS
Portland samplers are used to monitor zebra mussel throughout Oklahoma.

Genetic Markers Developed for Endangered Woundfin

Dexter National Fish Hatchery and Technology Center's Molecular Ecology Lab is

characterizing the genetic structure of wild and captive woundfin using microsatellite DNA based techniques. This is a cooperative project with the Virgin River Resource Management Recovery Program and Utah Division of Wildlife. The primary goal is to gather genetics data that will serve as the baseline necessary to develop a genetics broodstock management and captive propagation plan for the species. The work conducted addressed several elements of the Recovery Plan for the Virgin River Fishes (USFWS1995). The primer note titled *Twelve micro-satellite markers discovered in woundfin (Plagopterus argentissimus), an endangered warm water fish of the lower Colorado River basin* authored by Ninh V. Vu,* Connie L. Keeler-Foster,† Ingrid B. Spies,‡ Daniel T. Ribeiro§, was published in Molecular Ecology Notes (2005) 5: 302-304.

Manuel Ulibarri, Dexter NFH&TC

Dexter Molecular Ecology Lab Completes Initial Genetic Screening of Endangered Humpback Chub

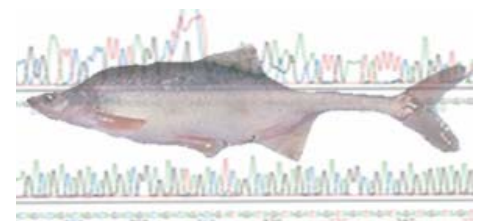
The Dexter Molecular Ecology Lab has genotyped 144 humpback chub tissue samples using six microsatellite markers previously derived from bonytail chub. This is a cooperative project utilizing the assistance of the Arizona Game and Fish Department and Dr. Allan Strand from the College of Charleston,

Grice Marine Laboratory, Charleston, South Carolina.

The information from this effort will be used to characterize variation in a selected group of wild fish from the Little Colorado River and the captive fish maintained at Willow Beach NFH. The main objective of this project is to assess the quality of this preliminary genetic data and, if possible, determine whether the Willow Beach captive stock adequately represents the genetic variation present in the Little Colorado River. This work is a valuable contribution to better understanding the value and role of humpback chub in captivity and their potential use as brood stock.

The initial findings indicate that the genetic markers in the captive population adequately, but not perfectly, represent the genetic variation present in wild populations of humpback chub in the Little Colorado River. As a result, the Dexter staff believes that the Willow Beach captive stock is an important source of genetic material for future captive propagation programs, and maintaining this stock should be a management priority.

Manuel Ulibarri, Dexter NFH&TC





-USFWS

Exotic water trumpet growing in the San Marcos River, Hays County, TX.

San Marcos NFH&TC Explores the Removal of an Exotic Aquatic Macrophyte from the San Marcos River

Water trumpet is a submersed aquatic macrophyte native to Sri Lanka that was found in the San Marcos River, Hays County, Texas, in the mid 1990s. This plant's range is expanding at a rapid rate, quickly taking over substrate suitable for endangered Texas wildrice. In response to the encroaching water trumpet, various central Texas private, educational, state, and federal groups came together and worked out an eradication plan. It was decided that the San Marcos NFH&TC would direct a pilot-study to eradicate the invasive plant from a 0.5 km stretch of the San Marcos River using a small suction dredge. Although this method showed success in controlling water trumpet in this section, it proved to be too slow of a process to keep up with the invasive macrophyte in the river. Therefore, together with the Austin Ecological Services, professional dredgers were contracted to use similar methods on a larger scale to eliminate the invasive plant.

Before the contracted dredging begins, the San Marcos NFH&TC has been conducting preliminary field and laboratory studies to determine the minimum depth to dredge. Not dredging deep enough could mean rapid regrowth of the plant while dredging too deep could cause destabilization of the river bed and banks. We dredged 1 m² quadrats in mono-specific stands of water trumpet to 0, 3, and 6" depths into the river bed and are monitoring them over time to determine how fast the quadrats fill in with sediment and how deep we need to dredge to prevent plant regrowth.

The tendency of the plant to trap sediment and build mounds around its stands has us looking at the root and rhizome viability of water trumpet in multiple depths of substrate. We obtained four sediment cores from the San Marcos River within mono-specific stands of water trumpet. We extruded these cores and put the segments containing sediment and plant fragments from multiple depths, ranging from 2.5 to 12.5", into shallow containers with water which were then placed in growth chambers. We are currently examining these samples daily for signs of growth. The results from this study will inform us about the viability of this exotic plant when certain depths of substrate and plant material are removed and will aid in making critical decisions involved in this extensive eradication project.

Mara L. Alexander and Valentin Cantu, San Marcos NFH & TC



Record Year for Paddlefish Production Continues at Tishomingo NFH

Over 31,000 12-inch paddlefish were tagged with coded wire tags and released above Denison Dam, an impoundment on the Red River. This is part of a multi-year objective to re-establish a self-sustaining population above the impoundment. The last recorded paddlefish sighting above the impoundment was in the 1950s. Thanks to additional personnel and facilities made available through the Fisheries Operations Needs System (FONS), we experienced a record year with regards to paddlefish production.

Kerry Graves, Tishomingo NFH

Tishomingo National Fish Hatchery Continues Snapping Turtle Conservation Efforts

Following a 90 day incubation period, the 2005 alligator snapping turtle eggs finished hatching in mid-August. A 75% hatch rate yielded 157 hatchlings. The 28°C incubation temperature should have provided us with an even mix of males and females

according to recent research. The young turtles will be split and reared in a variety of conditions in order to determine the best means of propagating turtles capable of surviving and contributing to wild populations upon release. In 2006 some of these hatchlings will be tagged, fitted with ultra-sonic transmitters, and released in selected areas for monitoring. Much of the work is being done by volunteers and graduate students from Oklahoma State University.

Kerry Graves, Tishomingo NFH



-USFWS
Newly hatched alligator snapping turtles.



-USFWS
Eggs and milt are "stripped" from Apache trout for future production.

Super Year for Apache Trout Production at Williams Creek NFH

Williams Creek NFH observed its 20th year in the business of Apache trout propagation and finished this year's spawning with a new record for the production of eyed eggs. For those unfamiliar with brood stock programs and trout spawning, one measure of program efficiency is percent eye-up of eggs. This metric compares the number of unfertilized eggs produced by brood stock with the number of eggs that are actually fertilized and produce a viable embryo to an egg stage where the embryo's eye is sufficiently developed to be visible through the outside membrane of the egg. This metric is a measure of overall fitness of brood stock, spawning technique involving handling of gametes, and care of eggs during the early and fragile stages of initial incubation. This year, Sherry White and her Williams Creek Crew achieved an eye-up of slightly over 90%, a level that is rarely achieved in propagation of native trout, especially captive stocks only six generations from the wild. As mature Apache trout males produce very small amounts of milt, milt collection is accomplished as a separate spawning operation. Milt is aspirated into vials suspended in an ice bath and temporarily stored in a pure oxygen atmosphere. Later, this milt is slowly tempered to normal water temperature and combined with eggs in solution of sodium bicarbonate to delay hardening of the egg and closure

of the micropyle, while significantly raising the pH to achieve a higher sperm cell activation rate in their 10-second race. Apparently Sherry's technique is working very well. Congratulations to Sherry and her crew, including volunteers, for a job well done!

Bob David, Alchesay-Williams Creek NFH Complex

Williams Creek NFH Volunteer Joe White Exceeds 10,000 Hours

Joe White, volunteer at the Williams Creek National Fish Hatchery, recently exceeded 10,000 hours of volunteer service to the U.S. Fish and Wildlife Service. Mr. White has been an integral part of hatchery operations by caring for eggs, fry, and fingerlings, and has contributed many hours toward upkeep of hatchery grounds and vital equipment. Through his dedication and hard work, Joe has provided a model to others by tirelessly assisting to fulfill the Service's mission.

Joe and Betty White were nationally recognized in 2003 with the President's Volunteer Award, which honored them for "outstanding stewardship". They were presented with the award by Dale Hall, Region 2 Director.



Pinetop Fish Health Center Staff Play National Fish Health Roles

The staff at the Pinetop Fish Health Center continues to play strong fish health roles not only in Region 2, but at the National level as well. Aquatic Animal Health is becoming more of an issue and concern as our hatcheries and fishery resource offices continue to deal with new species other than finfish.

John Thoesen, Director of the Center, continues to Chair the National Aquatic Animal Health Committee which recently revised the Service's Fish Health Policy. This recent revision was the most complex in Service history in regard to the review process the policy when through. In addition, due to the fact that our fisheries facilities deal with so much more than finfish the policy has now evolved into the Service's Aquatic Animal Health Policy. The Aquatic Animal Health Policy Committee has overall responsibility for the revision of the Aquatic Animal Health Policy (713 FW1-5), the appropriate sections of Title 50 CFR (in particular section 16.13) and the U.S. Fish and Wildlife Service Handbook of Aquatic Animal Health Procedures and Protocols. The Committee meets at least annually and is comprised of one Service FHC Director from each Region/CNO and the National Fish Health Program Coordinator, Division of the National Fish Hatchery System, Washington Office.

Phil Hines, Assistant Center Director is serving on the Handbook Revision and Oversight Committee. This National Committee consists of 3 people from the U. S. Fish and Wildlife Service, 3 people from the American Fisheries Society, the U.S. Fish and Wildlife Service's National Fish Health Coordinator, and the Chairman of the American Fisheries Society, Fish Health Section. The function of this committee is to hold an annual meeting to address all requests for revisions of the Handbook. The Committee keeps the handbook current and shall update and distribute current copies. This important Committee is responsible for assuring that the National standard for conducting fish health inspections are current, developed with the most current science, and as accurate as possible.

Jason Woodland continues to serve on the National Wild Fish Health Survey Laboratory Procedures Manual Committee. The most recent revision, (3rd Edition) of this manual, was chaired by Jason and completed in June 2005, is currently available on the web at <http://www.fws.gov/pacific/wildfishsurvey/>.

The procedures committee is composed of one representative from each of the nine USFWS Fish Health Centers and is currently revised on an annual basis. The committee was formed to revise the manual so that the laboratory procedures used by the USFWS on a national level are the most effective and

scientifically defensible procedures for inspection of pathogens affecting wild fish health. The goal of the National Wild Fish Health Survey is to determine the distribution of certain pathogens in fish in the wild, providing valuable information for fishery resource managers in reducing the spread of pathogens.

John Thoesen, Pinetop FHC

Willow Beach NFH Continues to Support Fish and Wildlife Service's Mission

The Willow Beach National Fish Hatchery aligned human capital policies, leadership development, and performance management to effectively support Fish and Wildlife Service's mission goals and strategies. Hatchery personnel successfully took training and instruction to maintain a safe, productive, supportive, and fair work environment. Personnel participated in diversity awareness training, implemented zero tolerance standards for discrimination, harassment and retaliation. This ensured that discrimination, sexual harassment, or hostile work environment were not tolerated. Additionally, hatchery staff took security (e.g., IT), safety (e.g., CPR), and personal management training (e.g., Essential Skills in Leadership). Further, 5-level performance plans were established for all personnel that included results linked to GPRA and other strategic goals.

Chester Fiegel, Willow Beach NFH

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